



Industrial

# Standardization

and Commercial Standards Monthly

August

ASA Approval  
Completes Twist Drill  
Standard  
(Page 193)

1940

## "More Remains to Be Done"

**W**HEN under the defense program a manufacturer takes a contract outside his regular line of production, he is faced with the necessity of making many changes in the operation of his plant. His problems are much like those of an automobile manufacturer in retooling for a new model.

These problems are basically problems of standardization.

Every government order carries with it the specifications or standards that define the gun, tank, blanket, or truck that the manufacturer has to make, or the materials that he has to supply. A single government order may extend to hundreds of companies—manufacturers of parts or suppliers of materials. Many of the companies will not have had experience with these particular products. Each of them in turn must control all his operations so that the completed product will comply with the standards originally laid down as a part of the order. Hence every one of these manufacturers must have a thorough understanding of standards—how to work to them in shop, processing plant, and assembly line.

The integration of the entire process into a smooth flow like a great river system is an enormous undertaking. Shortcomings in the government standards or in the manufacturers working to them—too many kinds of products—obsolete requirements—unnecessarily close fits—faults in workmanship or materials—all result in bottlenecks which cut down the flow of the goods.

The present national emergency brings the whole program of standards into sharp focus. Within the month the Society of Tool Engineers has requested a project for classifying tool steels. On page 196 of this issue is the report of a letter sent out by the National Association of Manufacturers on the subject of difficulties in filling government orders. On page 197 Colonel Young explains the importance of standard specifications in army purchasing.

The American Standards Association was brought into being at the close of the last war as the result of the serious handicap to the industrial program of the country caused by a lack of national standards.

While industry has accomplished a great deal in the integration of standards through technical and trade associations, and through the ASA, and while government on its side has made substantial progress in coordinating the specifications of the various departments and bureaus, far more remains to be done.

—P. G. Agnew.

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# Industrial Standardization

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RUTH E. MASON, *Editor*

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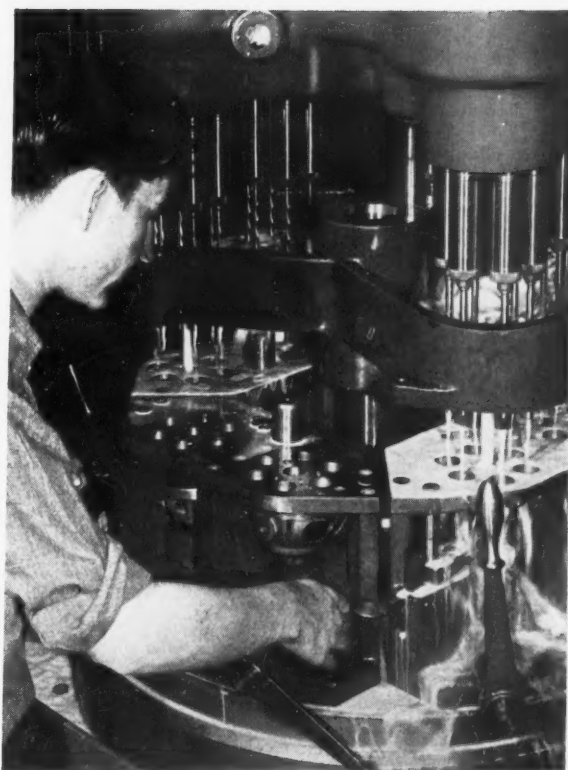
**August, 1940**

**Vol. 11, No. 8**



*A series of 116 twist drill diameters, with corresponding over-all and flute lengths, is given in the new American Standard for Twist Drills*

# ASA Approval Completes Twist Drill Standard



*Courtesy The Foote-Burt Co.*

**A**GREEMENT between manufacturers and users of twist drills, solving a difficult controversial problem concerning the drill sizes to be accepted as standard, was finally completed this month when the new American Standard for Twist Drills, Straight Shank,<sup>2</sup> was approved by the American Standards Association. ASA approval was given to the standard following the unanimous recommendation of the Special Committee on Twist Drills, appointed by the ASA Standards Council to help straighten out controversies which had developed in the preparation of the standard.

The new American Standard as completed and approved consists of three main parts—(1) Introductory Notes, comprising among other things nomenclature applying to drills, and several classifications of drills made on the basis of different characteristics; (2) a table of 116 drill diameters ranging from .0156 to .5000 inch, inclusive, with corresponding over-all and flute lengths, recommended by the committee that developed the standard; and (3) an Appendix giving the 116

by

**Charles Rufus Harte<sup>1</sup>**

*Chairman, ASA Special Committee  
on Twist Drills*

American Standard sizes, together with 158 additional "Manufactured Sizes" of drills—or altogether 274 sizes—still available from the shelves of the twist drill manufacturers. It is expected that in the course of time the manufacturers will have to stock only the American Standard sizes, due to decrease, or possibly even the elimination, of the demand for sizes other than the American Standard sizes in the range up to  $\frac{1}{2}$  inch, inclusive.

<sup>1</sup>The Connecticut Company, New Haven, Conn. Mr. Harte is a member of the ASA Standards Council representing the American Transit Association, and is also chairman of the Electrical Standards Committee.

<sup>2</sup>B5.12-1940.

Two major points had to be settled by common agreement between the manufacturer group and user groups before the necessary consensus in favor of this standard could be reported to the American Standards Association. For settling these controversies the fundamental soundness of ASA procedure has been clearly shown again.

One issue was the question of the step-up in

One hundred sixteen of the 274 drill diameters stocked by manufacturers were selected for approval as standard sizes in the new American Standard for Twist Drills, Straight Shank (B5.12-1940). Although the other sizes will still be available, twist drill users who order from the 116 American Standard diameters will enjoy the benefits of mass production. Drill manufacturers will only have to make and stock the extra catalogue sizes so long as sales warrant it, hence will also benefit as the standard is accepted in practice.

The new standard also provides both a Regular Series of over-all and flute lengths, and a Long Series for drills in the diameter range from .1250 to .5000 inch. The Long Series was added for the convenience of large user groups, such as the automobile manufacturers. These large users have many jobs requiring drills with a longer shank than those needed by the average user, who counts on being able to regrind a drill many times before it becomes too short for use.

The standard was developed by Technical Committee 7 of the ASA Sectional Committee on Small Tools and Machine Tool Elements (B5). Members of the technical committee are:

W. C. Mueller, Western Electric Company,  
*Chairman*

W. L. Barth, General Motors Corporation

C. R. Briney, Jig Bushing Company

G. L. Buffington, Ex-Cell-O Corporation

J. H. Horgan, Union Twist Drill Company

C. W. Spicer, Spicer Manufacturing Corporation

F. S. Walters, Westinghouse Electric & Manufacturing Company

The work of the committee on small tools and machine tool elements is carried on under the joint leadership of the American Society of Mechanical Engineers, the Society of Automotive Engineers, and the National Machine Tool Builders Association.

diameter from .0156 to .5000 inch. Commercially this range is covered by a variety of 277 drills belonging to four different classifications: by gage number, by letter, by fractional inch size, and by millimeter size. Due to a few duplications in these various classifications the total number of different commercial diameters is 274.

Technical Committee 7 on Twist Drills, a subcommittee of ASA Committee B5 on Small Tools and Machine Tool Elements, first proposed that this commercial variety or series of "catalog sizes" be cut down to 112 recommended diameters, consisting mostly of "catalog sizes" with a few new sizes in decimal fractions of an inch added to get a more gradual step-up. Objections of the manufacturers to these new additions and the elimination of some catalog sizes led to a revised series. The present 116 American Standard drill diameters have been taken exclusively from manufacturers' catalog sizes.

### *Long Series of Sizes Added*

The other difficulty concerned certain lengths of twist drills. For the diameter range from .1250 to .5000 inch inclusive the American Standard as now approved gives a Regular Series and a Long Series of over-all and flute lengths. The long series was added upon the insistence of some large user groups, such as the automobile manufacturers, who wanted to get more use out of a drill. At first, the drill manufacturers did not favor the listing of the long series in the American Standard because the general demand for this product still was limited. However, agreement was finally reached on the addition of the long series for the fractional sizes in the diameter range from .1250 to .5000 inch.

In the course of the development of the standard, the large user groups stated that the proposed reduced series of diameters—less than half of the catalog sizes—would cover their requirements. In regard to this statement, the drill manufacturers brought out that a considerable volume of their business still was in the sizes not proposed for inclusion in the draft American Standard. This business came, they said, from a large number of small users who made their selection individually from the existing variety of catalog sizes.

### *May Stock Catalog Sizes*

In this respect the attention of the drill manufacturers was called to the fact that while the proposed American Standard was meant to recommend a selected series of diameters for preferred or even exclusive use, this would not pre-

vent any user from ordering some other size of drill if he thought he needed it. Also, the drill manufacturers would remain entirely free to continue the making and stocking of all catalog sizes as long as their business warranted this.

The American Standard for Twist Drills, like all American Standards, is intended only as a recommendation to industry and, if accepted in practice, it will in the course of time lead to a reduction of the variety of drill sizes. Such a reduction would also directly benefit the drill manufacturers who would be able to concentrate on a smaller number of items.

In keeping with basic ASA principles, these several difficulties were removed by the conference method.

When the draft of the proposed American Standard submitted first to the ASA appeared not to be acceptable to the drill manufacturers, the chairman of the Standards Council appointed a Special Committee to see what could be done to straighten out the matter. Its membership was as follows:

C. R. Harte, American Transit Association, *Chairman*

L. F. Adams, National Electrical Manufacturers Association

E. J. Bryant, American Society of Mechanical Engineers

W. E. Caldwell, Metal Cutting Tool Institute

W. I. Cantley,<sup>3</sup> Association of American Railroads

J. H. Edmonds, American Institute of Bolt, Nut, and Rivet Manufacturers

F. M. Farmer, American Society for Testing Materials

F. O. Hoagland, National Machine Tool Builders Association

A. M. Houser, Manufacturers Standardization Society of the Valve and Fittings Industry

H. L. Huber, Telephone Group

H. C. Hungerford, Metal Cutting Tool Institute

C. W. Spicer,<sup>4</sup> Society of Automotive Engineers

C. B. Veal, Society of Automotive Engineers

A. W. Whitney, National Conservation Bureau

In view of the many obvious advantages of the proposed standardization the Special Committee felt that the objections must be due to some misunderstanding, and it therefore applied the basic ASA method—the conference. At the suggestion of the Special Committee a small subcommittee was invited to sit down with the objectors. It at once became evident that practically all of the opposition arose, as had been surmised, from entirely unwarranted fears of harmful restrictions on existing practices. With these fears dispelled, and certain valid objections made clear, the Special Committee referred the original proposal back to sectional committee B5 with the suggestion that it be revised so as to become acceptable

to the manufacturers of twist drills, as well as to the users. Later on, the Special Committee met jointly with Committee B5 and again with a large group of representatives of the drill manufacturers. In this way, by discussion and personal contact, the purpose of the proposed American Standard was clarified and unanimous agreement on its contents and form was reached.

The case of Twist Drills is a fine example of the essential value of ASA procedure in creating harmony between producers and users of industrial products. This example is more significant than ever now that the need of coordination between government requirements and industry's means of answering them is a problem of vital importance to this country. The machinery of the ASA can render valuable services in many other cases where successful preparation for an emergency depends largely on harmonious cooperation between government and industry.

## Dr. Sayers Named to Head U. S. Bureau of Mines

Dr. R. R. Sayers, chairman of the ASA Committee on Standard Allowable Concentrations of Toxic Dusts and Gases, and formerly senior surgeon of the Public Health Service, has been named Director of the U. S. Bureau of Mines.

Dr. Sayers is vice-chairman of the Subcommittee on Pneumoconiosis of the Correspondence Committee on Industrial Hygiene, International Labour Office.

He has been active in the work of the American Standards Association for some years, as a member of the Safety Code Correlating Committee and the Building Code Correlating Committee, and of several technical committees.

## Available List of Commercial Standards

The official list of Commercial Standards revised to July first has been published by the National Bureau of Standards. The list has the designation Letter Circular LC-604 and may be obtained free of charge from the National Bureau of Standards, Washington, D. C. It supersedes Letter Circular LC-589.

Most of the Commercial Standards listed in LC-604 can be purchased from the Superintendent of Documents, Washington, D. C., at the price of either five or ten cents. Others may be procured in mimeographed form from the National Bureau of Standards at no charge.

<sup>3</sup>Since resigned from ASA activities.

<sup>4</sup>Deceased in 1939.

## Manufacturers' Association Asks For Data on Standards Problems

**C**ONCERNED lest the Government's defense program may not be able to take full advantage of the mass production capacity of the United States due to lack of agreement between industry and Government on standards and specifications, the National Association of Manufacturers has asked its members to help in a plan of cooperation with the Government whereby standardization problems may be presented to the National Defense Advisory Commission.

The key to solution of the defense problem is mass production, the NAM explained, and the key to mass production is a carefully worked out plan of procedure for manufacturing the desired items in accordance with standard industrial practice. Revolutionary change in implements of war and the strategy of attack and defense have made many specifications obsolete, and constant improvement in manufacturing practice and technique require constant revision and modification of standards in order to take advantage of technological advance.

The American Standards Association from its long experience in dealing with the standardization problems of both industry and government groups in the development of national standards is in a key position to help resolve the "bottle-necks" and obstacles which prevent industry from operating on government orders with the greatest effectiveness.

**ASA Members are invited to join with NAM members in presenting standardization problems to National Defense Commission**

Therefore, the NAM has asked its members to write directly to the American Standards Association calling attention to problems in the way of standards and specifications which they believe are increasing difficulties in production for national defense.

The technical staffs of companies and associations who are familiar with production problems and shop operation, are in an excellent position to uncover situations where difficulties are arising in the use of standards, whether of governmental or industrial origin. Members and groups cooperating with the American Standards Association are consequently also invited to join this effort to uncover the standards problems which need attention in order to further the defense program. Letters should be addressed to the American Standards Association, 29 West 39 Street, New York.

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### History Repeats Itself

"News that it will take nine months merely to prepare for the production of 9,000 airplane engines will remind some historians of industry and engineering of Eli Whitney and the great need of the Government for arms in 1798. Jefferson, then vice-president, signed a contract which obligated Whitney to supply 10,000 muskets in two years. At the end of a year only 500 had been delivered—a production of less than two a day. After the contractual two years had expired deliveries ceased. Pressed by the Government, Whitney hastened to Washington and before a board of experts assembled ten muskets from ten identical barrels, ten identical stocks, ten identical triggers. Whitney's time was extended and the Government's order filled.

"Scores of factories are today precisely in

Whitney's position. How many of them will recognize their debt to him? He was not the first to conceive the principle of interchangeable parts, the basis of mass production, but he was certainly the first to apply it on an industrial scale. The result was not merely a technical triumph but a social revolution. Cheap automobiles, typewriters, sewing machines, much of the paraphernalia of modern life would be impossible without Whitney. He was the industrial ancestor of all our mass producers. Yet histories of invention dwell on his cotton gin rather than on his introduction of interchangeability, probably the most revolutionary principle ever introduced in manufacturing."

—*New York Times*, July 23, 1940.



# Materials Standards in National Preparedness<sup>1</sup>

THE question of material standards is a most important element in national preparedness for reducing the time factor in reaching quantity production of military equipment and supplies. Without these standards, there would be much delay, not only in production of semi-fabricated materials but also in processing them through the various stages of manufacture to the finished article.

In peace procurement programs, 1½ to 2 years are required for delivery of many highly important items of equipment. Even with the concentrated effort of industry in an emergency, needs for military equipment and supplies for much greater war emergency requirements could not be met in less time.

## *Planning to Reduce the Time Factor*

Planning, in so far as procurement of material for the Army is concerned, has for the past 20 years been directed toward reducing the time factor in supply from new production. In that planning four questions presented themselves for solution and answer:

### *1. What is wanted?*

This has been answered by the development and adoption of articles suitable for the purposes as standard equipment. Material standards are a highly important consideration in the answer to this question.

### *2. How many are wanted and at what rate?*

This question has been answered by computation of requirements. The mobilization of manpower, assembled in the necessary military units, is determined by the Army General Staff. The supply requirements for these units are then computed by the supply branches of the War Department in Washington. They are the Air Corps,

by

**Lieut. Col. William C. Young<sup>2</sup>**

*Planning Branch, Office of  
the Assistant Secretary of War*

Chemical Warfare Service, Corps of Engineers, Medical Department, Ordnance Department, Signal Corps, and Quartermaster Corps.

As there are some 70,000 items on the supply lists of these services, an idea of the magnitude of the requirements problem is manifest. These computations consider the initial equipment of troops, the time mobilized, wastage allowances for equipment worn out or expended, tariff of sizes for clothing, and stocks being transported through for the pipeline of supply. Requirements also consider the needs of the Navy for such items as rifles, machine guns and their ammunition, which are supplied to the Navy by the Army.

### *3. Where can the equipment be obtained?*

The answer is formed by a survey of industry and use of the small capacity of government manufacturing arsenals and depots. In a major effort, over 90 per cent must be produced by industry.

With the program of requirements in hand, industry is approached through the Procurement Planning District organizations of each supply arm and service. There are some 58 such organizations. Of these, 14 are Ordnance, 4 are Signal Corps, and the other supply branches have varying numbers in between. The continental United States is divided by each procuring service into districts which are suitable to their needs

<sup>1</sup>This article is abstracted from a paper presented by Colonel Young at the Forty-third Annual Meeting of the American Society for Testing Materials at Atlantic City, N. J., June 24-28, 1940.

<sup>2</sup>Colonel Young is taking an active part in the work of the American Standards Association as representative of the War Department on the ASA Standards Council, and as a member of the ASA Company Member Forum.

when compared to the manufacturing industries located in each area. New York City, for example, has a District Headquarters for each of the seven supply arms and services. Districts have a skeletonized staff consisting of a prominent civilian business man, an executive officer of the Regular Army, and such clerical personnel as may be required. In time of war the districts will be expanded and have as many of the procurement functions as can be decentralized from Washington.

The District has certain defined responsibilities in planning for decentralized war procurement. Initial apportionments of the procurement requirements are made to each district. Technical information for the manufacture of the article, including drawings, specifications, and quite often a description of manufacture prepared by a Government arsenal, if it is a strictly noncommercial item, is made available. The Regular Army executive surveys his area for sources of supply under the direction of his District Chief, who is acquainted with the key industrial men in that area. Together with the cooperation of the plant management, the executive studies the potentialities of each plant believed suitable for war production. In accordance with the general policy, he plans for only half or less of the potential capacity, so as to leave the remainder for normal production to meet the civilian requirements, and also to avoid dislocation of normal production to which the manufacturer must return after war.

The Chief of the supply arm or service, with the data resulting from this preliminary survey by the district, requests the Assistant Secretary of War, who is charged with the supervision of business relations of the War Department both in peace and war, to allocate the capacity needed by his particular service to produce the required articles. This matter brings to the front coordination of other supply agencies so that they will not be bidding against each other for the output of the selected producers. The interests of the Navy, our first line of defense, are protected by coordination through the Army and Navy Munitions Board of which I will speak a little later. Through this procedure some 20,000 plants have been surveyed and approximately 10,000 selected as potential prime contractors for the manufacture of items of military equipment which are expected to present difficult problems of procurement in an emergency.

#### *4. How can these supplies be obtained in the time and quantity desired?*

The ability of the manufacturing plant to produce these noncommercial articles is the key to this question. The procedure so far has located

a source of supply and has indicated a brief examination of the plant for the production of the desired article. What is now desired is a definite, realistic schedule of production which the plant may be expected to meet under the conditions which may exist in war. That involves a detailed plan for manufacture—requirements of machine tools and other manufacturing equipment, sources of raw and semifinished materials, requirements for labor, power, and transportation. That work is usually done by the plant management in cooperation with the District Office. When all details are settled, the manufacturer is prepared to sign an accepted schedule of production. This is not a contract, but an acceptance by the manufacturer of his part in war production programs.

The District plans must be flexible enough to change with industrial conditions and possible changes in war requirements. It is obvious that static plans would be more or less useless. They must be constantly revised to keep abreast of the times. Industry is changing and these plans must change to accord with it. Note that the procedure so far has not given the plant actual experience in the manufacture of the article.

#### *Production and Educational Orders*

The best plans that would serve to save time would be actual production orders in the plant of the item they are expected to make in war. The aviation industry, which manufactures all aircraft required by the Army, is thoroughly conversant with the technique required in its manufacture on the present quantity basis. Plans for further expansion of this industry are now given much publicity. Some three times the present capacity is reported to be necessary to provide a potential capacity of 50,000 military airplanes a year. Other than for aviation, it may be said that sizable orders have been placed with some 50 companies during the past year for military equipment or its components. These do not include the many sub-contractors involved, which may run as high as 50 to 60 for each prime contract.

The educational orders, which were authorized for the first time last year, are next best. At the present date, 105 educational orders have been placed for 58 items which are strictly of a non-commercial nature and in plants which are not familiar with their manufacture. Educational orders require the manufacture of a small quantity of the item by quantity production methods, but provide only a small portion of the manufacturing equipment which is necessary for the quantity which is contemplated for war production in that particular plant. They are intended to definitely establish the technique of manufacture, to provide a factory plan based on that experience and a

skeleton set of manufacturing equipment. The factory plan will cover all the elements necessary to convert the plant to full quantity production. It is estimated that quantity production would be advanced from 4 to 12 months in those plants which have experience through educational orders.

### **Production Studies**

The next possibility is the preparation of production studies which are in reality factory production plans, but without any actual manufacture of the item. Until this year funds were not available to purchase such studies. Many companies, appreciating the importance of rapid production in an emergency, spent considerable sums of their own on such plans. During the present year a few production studies are being purchased. Only in a few cases do they provide for even so much as one set of gages or jigs. No additional manufacturing equipment is purchased on these orders.

There are some 1200 items, or separate processes of manufacture, of military equipment that present particularly difficult problems for procurement in an emergency. Approximately half of these are similar to articles normally produced by industry. The remaining half are distinctly noncommercial and have not been produced in quantity by industry in recent years.

Some 2000 plants would be involved as prime contractors for the manufacture of these distinctly noncommercial items. The extension of programs to establish the "know how" of manufacture in these plants is highly important as a means of reducing the time factor in getting to quantity production.

### **The Economic Picture**

Vast amounts of materials, services, labor, and manufacturing equipment would be needed in a national emergency to say nothing of power and transportation. All of these must be available to the producer if he is to carry out his schedules. Consequently, studies are also made of factors entering into the whole economic picture, with a view to having available a suggested procedure which could be put into effect. That is the second phase of planning. The Planning Branch of the Office of the Assistant Secretary is charged with making such studies. They are coordinated through the Army-Navy Munitions Board with the Navy, other Federal departments and agencies, and with industry.

### **Munitions Board**

The Army and Navy Munitions Board is the senior joint agency between the Army and Navy

### **A Reader Comments**

"An article in a recent issue of **INDUSTRIAL STANDARDIZATION** reminds me of the situation which existed during the World War. As a member of the Engineers Club of Philadelphia, I assisted with an industrial survey of that city on a volunteer basis because the Government had no industrial census records. Then in 1919, following the war, on a committee set up by Governor Cornwall. We supplied the War Department with maps, including highways, for the reason that such maps did not exist in the War Department files. There was, apparently, a need not only for standardization but for bare facts in those days."

—**W. E. E. Koepler, Pocahontas Operators Association.**

for dealing with and rendering decisions upon industrial planning problems which require co-ordination of the Army and Navy activities and preparation of studies involving mobilization of industry as may be required in an emergency. The Board was established by joint action of the Secretary of War and Secretary of the Navy. It consists of the Assistant Secretary of War and the Assistant Secretary of the Navy assisted by such committees as are considered necessary for its planning activities. The personnel of the committees consists of Army and Navy officers and such civilian experts as may be called in an advisory capacity. The Army and Navy Munitions Board was given official recognition by Congress in legislation authorizing the purchase of critical and strategic stock piles, as designated by the Board. By Executive Order of the President on July 5, 1939, the Army and Navy Munitions Board reports directly to the President as Commander-in-Chief of the Army and Navy.

Among some of its activities are studies regarding steel capacity of the nation as compared to war requirements. This particular study undertakes to discover requirements of steel for all purposes in a national emergency and to compare the steel manufacturing capacity against this requirement. In war, steel must be available to manufacturing plants with the least possible delay. This study proposes a plan for its supply where needed.

Machine tools constitute a choke point in the

manufacture of critical items of military equipment. Consequently a study was undertaken to compare requirements of machine tools for the manufacture of military equipment in war with available capacity of the machine tool industry. The raw materials so vital to our peace-time life may not be so readily available in war. Continuous studies are made to devise ways and means of meeting war requirements. Certain strategic materials are not available in sufficient quantity from our domestic sources. These materials are:

#### *Strategic Materials (14)*

Antimony	Mercury	Rubber
Chromium	Mica	Silk
Coconut shell char	Nickel	Tin
Manganese, ferrograde	Quartz crystal	Tungsten
Manila fiber	Quinine	

Others are critical as to volume of supply, and plans must be made to assure an adequate supply for emergency use. The materials considered critical are:

#### *Critical Materials (15)*

Aluminum	Iodine	Platinum
Asbestos	Kapok	Tanning materials
Cork	Opium	Toluol
Graphite	Optical glass	Vanadium
Hides	Phenol	Wool

Recently, for the fiscal year beginning July 1, 1939, \$10,000,000 was appropriated for the purchase of stock-piles of strategic and critical materials by the Treasury Department to be held as a reserve in the event of a national emergency. Purchases have actually been made of tungsten, optical glass, chromium ore, pig tin, manganese ore, quinine, quartz crystal, and manila fiber. Rubber is being acquired from Great Britain in exchange for cotton.

### *Industrial Mobilization Plan*

The Army and Navy Munitions Board coordinates allocation of industrial production facilities between the Army and Navy in order to prevent duplication of effort in obtaining sources for manufacture by the two departments. The principal duty of the Board has been to prepare studies leading toward recommendations for industrial mobilization of the nation. The Industrial Mobilization Plan of October, 1939, approved jointly by the Assistant Secretary of War and the Assistant Secretary of the Navy, was finally evolved. It is the third revision of this plan. It is not secret or confidential and can be obtained for ten cents from the Superintendent of Documents, Washington, D. C.

Briefly, it recommends the creation under the President of temporary executive agencies, the principal one being a War Resources Administra-

tion to secure coordination of the economic life of the nation, with a view to unified effort for winning of any war in which this nation may unfortunately become involved. It is based upon cooperation rather than compulsion. True, the war powers of the President exist and may be used if necessary, but they are for use only on the recalcitrant.

The plan provides that this organization will be run by civilians. The military man will enter into the economic coordination picture only to the extent of presenting Army and Navy needs and policies to the super-agency. Studies made during peacetime by the ANMB will be supplied for its information and for such other use as they may desire. The ANMB would function as liaison between the Army and Navy and this super-agency.

The Industrial Mobilization Plan is actually a study with recommendations.

This study does not propose the modification of any of our constitutional processes. Indeed the prime purpose of procurement planning and of the Industrial Mobilization Plan is the protection and continuation of these processes which are so basic to the peace and security of the people of the United States.

Any plan of this nature must necessarily be flexible so as to be adaptable to the particular circumstances as they arise. An Advisory Commission of seven civilian members to the Council of National Defense has recently been appointed under the authority contained in Section 2, Act of August 29, 1916, for the coordination of resources of material and production, necessary in the present larger procurement programs for national defense. Prominent civilians, familiar with the problems of industry, are placed in charge of that coordination.<sup>3</sup>

In the War Industries Board of 1918, the Commodity Committees were the backbone of the structure. They provided a meeting ground for representatives of Government and of industry. So now the Industrial Mobilization Plan of 1939 recommends War Service Committees for similar purposes. Industry would be represented either by selected individuals of companies or through trade organizations.

Standards for materials will be subjects for consideration by these committees. It is contemplated in the event these committees function that use will be made of existing standards and specifications. Development of new standards and specifications may be required. It may well be

<sup>3</sup>D. M. Nelson, formerly vice-president of Sears Roebuck Company, Chicago, is now coordinator for Federal purchases, working closely with the Commission in solution of Government purchasing problems.—EDITOR.



that going committee organizations of technical societies may be asked to undertake such work.

### ***Standards for Materials***

The question of materials standards is a highly important one in the determination of what is wanted. Whether the article of equipment be an airplane, a tank, an antiaircraft gun, cloth for uniforms, or field mess equipment, the materials used must in so far as possible be commercially available in quantity. Even armor plate is not made in army arsenals but is a commercial product. If the best material is not so available, then the requirement must provide for substitute material. In some cases the strict performance requirements for distinctly military requirement are such that special materials are required, and sometimes treatments not used normally by industry are required.

The positive policy of the War Department is to adhere in so far as possible to the basic requirement of commercial availability of materials. Before any design of equipment is approved, a statement is required of the supply branch of the War Department charged with its development as to the materials in it which would be difficult to obtain either because of quantity or processes involved in manufacture.

There are some 660 specifications listed in "The Index of U. S. Army and Federal Specifications used by the War Department" for materials. (The Index may be obtained from the Superintendent of Documents, Washington, D. C., at a cost of 25 cents.) The great majority of U. S. Army specifications are not for sale but are furnished to bidders and prospective contractors in connection with purchases. These are developed by the supply branches of the War Department, each being assigned the materials in which it has the greatest interest.

### ***Comments from Industry***

In the course of their preparation, comments are obtained from interested industries as to their satisfactoriness wherever possible. These comments may be requested from companies, technical societies, or through advisory committees consisting of representatives of industry.

In preparing U. S. Army specifications reference is made to ASTM standards or other nationally recognized specifications which may cover the same materials. Since these standards or specifications do not always contain the exact requirements nor the type or quality of material which the U. S. Army specifications intend to cover, it is not possible for the War Department

to adopt these standards *in toto*. It does, however, attempt to include all of the essential technical requirements and methods of tests found applicable in order that the specifications so promulgated by the War Department may be in harmony with best commercial practice.

With reference to specific gravity of aircraft engine fuel, for example, the U. S. Army specification specifies that it is to be determined in accordance with the Method of Test for Gravity of Petroleum Products (ASTM D 287-39).

In addition to technical details which are applicable to the War Department only, the U. S. Army specifications must cover other details such as rules regarding inspection, grading, and marking. It is also necessary that the War Department exercise complete control over its specifications in order that revisions may be readily made and special conditions imposed that are required for War Department purchases.

### ***Copper Standards Coordinated***

Recently ASTM Committee B-5 on Copper and Copper Alloys undertook the coordination of its standards for certain non-ferrous materials, with those of the War Department. The committee obtained direct contact through War Department representation in its membership. As a result your series of standards for non-ferrous materials will be extended to include revised requirements for cartridge brass and new specifications for gilding metal, cartridge case cups, and bullet jacket cups. Other standards for non-ferrous materials will be coordinated with requirements considered necessary for military equipment.

The War Department endeavors to keep abreast of industrial standards for materials, not only by reference to published national standards, but also by taking part in the committee work of technical societies doing work on standards and specifications. By invitation of your Society the War Department is now represented on ten of your committees and other appointments are being made.

It is represented also on 36 Sectional Committees functioning under the procedure of the American Standards Association, as well as on committees of other technical societies.

Advisory Committees also perform a very useful function. Two such committees of the Society of Automotive Engineers have for many years given much assistance to the Ordnance Department in the development of combat vehicles and tires resistant to puncture by bullets.

There are three other types of specifications used by the War Department in addition to those of the U. S. Army, namely, Tentative Specifica-

tions, Federal Specifications, and AN-Aeronautical Specifications.

Tentative specifications are used by the supply branches of the War Department: first to try them out in actual purchase, to determine satisfactoriness of the specification; and second for nonrecurring purchases of material or equipment. These specifications do not bear the same numbering series as the formal U. S. Army specifications, nor are they included in the Index of U. S. Army Specifications.

Federal Specifications for use of all Federal Departments and agencies are prepared by the Federal Specification Technical Committees consisting of representatives from the interested departments working under the direction of the Federal Specifications Executive Committee. The War Department is represented on 65 of these 70 Federal Committees. Proposed Federal Specifications are coordinated with industry by the committee, and with all Federal Departments through the Federal Specifications Executive Committee. This series of specifications also follows industrial practice whenever possible. U. S. Army specifications are not prepared for materials covered by Federal Specifications.

Within the past two years a series of Joint Army-Navy Specifications for use in the procurement of materials and equipment for the air services of the Army and Navy was initiated through the Aeronautical Board. They are known as AN-Aeronautical Specifications and are mandatory for the Army Air Corps. Joint Army and Navy Committees also prepare common technical data to be included in the U. S. Army and in the Navy Specifications for gun forgings and propellant powders.

### ***Simplification Important***

In so far as materials for military supplies are concerned, the published standards of technical societies and trade organizations which are acceptable to industry and in accord with military requirements will be of the greatest value. Equally important is the work of the National Bureau of Standards in establishing commercial standards covering grades and quality of materials and in the development of simplified practice recommendations to reduce or limit the number of varieties and sizes of products.

The problem of further simplification and extension of commercial standards to cover additional items whether for military or civilian use is one of growing importance at the present time. The Director of the National Bureau of Standards in speaking before the Thirtieth National Conference on Weights and Measures early this month

called attention to the necessity of reducing the varieties of steels and their alloys in order that production may be increased for National Defense purposes.

### ***Standards Speed Production***

In view of the important role that standards can and will play in speeding up production in an emergency it is not unlikely that organizations which devote part or all of their efforts to standardization may be called upon to expand and expedite any of their programs which will accelerate production of necessary items of equipment, materials, and supplies.

The American Society for Testing Materials, a national technical society, which has for its purpose the promotion of the knowledge of materials of engineering and the standardization of specifications and methods of testing, is in an excellent position to make an important contribution in the field of standardization. If called upon to do so, it can very readily and promptly establish any new standards for materials which may be required for speeding up production and at the same time help to conserve essential raw materials. Certainly in war, conservation of materials will be most important. The adoption of any standards with this objective in view, or the reduction of varieties of the standards themselves for nation-wide use, would be most effective as a measure to save and divert materials to any war effort.

### ***Inspectors Needed***

In connection with the development of proper standards to cover materials needed in an emergency, one other important point should be emphasized. This has to do with the inspection of materials to determine whether or not they comply with the technical requirements of the standards or specifications on which contracts are based. Present plans for inspection of materials contemplate expanding inspection organizations in each procuring branch of the War Department. Qualified inspectors will be needed and if legal restrictions will permit, civilian organizations qualified to perform inspection work may be called upon to do this work.

There are a great number of organizations in the United States actively engaged in standardization work covering many fields. In the event the nation is faced with a major emergency, it may be expected that activities of these societies and organizations, especially of leading organizations such as ASTM, will be of great assistance in bringing it to a successful conclusion.

## Society of Tool Engineers Requests American Standards for Tool Steels

**C**LASSIFICATION of steels for tools, to help the user select the right tool steel for his particular use, is the principal object of a proposed new project for the Standardization of Materials for Cutting Tools which the American Society of Tool Engineers has just asked the American Standards Association to undertake.

There are about 1,000 brands of tool steel on the market today, of which many are identical or nearly so, the Society explained in asking the ASA to start work on the project. Because there are no standards by which the great number of brands can be judged and classified, the user may find himself drifting into using only a few brand-name steels which have given him generally satisfactory results. In many cases this may lead to the use of the wrong steel for particular applications, and consequently to the sacrifice of tool life, wearing qualities, etc. The classification of these tool steels by classes rather than by trade names, therefore, would be the most important phase of the work, the tool engineers declared.

The American Society of Tool Engineers described the general situation which led to the request for the new project as follows:

"Many attempts have been made to classify tool steels by numbering systems, etc., but have been abandoned. Some steel companies have adopted a system of classifying tool steels by main classes, or families, which is being widely copied by both manufacturers and users.

"This system divides all tool steels into seven main classes, as follows:

1. *Plain Tool Steels*—(Water hardening, such as Crucible's 'Crescent Special')
2. *Die Steels*—Punch Press  
Oil or Air Hardening, such as 'Oildie' H & R No. 80
3. *Die Steels*—Hot work  
Oil Hardening, such as 'Hard-Tem.'
4. *Tough Tool Steels*  
Oil Hardening, such as Ludlum's 'Seminole'
5. *High-Speed Steel*  
Oil or Air Hardening, such as 'Rex AA'
6. *Cemented Carbides* such as 'Carboloy'
7. *Miscellaneous Tool Materials* such as 'Graphitic Steels', 'Ampco Metal'

"Since classification of tool steel by classes, or uses, rather than by trade names is the project we are interested in at the present time, all steels could be indexed by class designation as listed

**Standard classification for materials for cutting tools would help user select best material for his needs, American Society of Tool Engineers declares in request for new project**

above, by manufacturer, by trade name, and by classes of usage. The choice of steel for a particular application would then become a simple matter for the user.

"The American Society for Metals and various users have already attempted some standardization along these lines and it is felt that a centralized effort by ASA to correlate all of these activities and produce an American Standard which would be subscribed to by industry in general, would be beneficial to all."

The proposed project for which the request has been made does not concern tool steels alone but also other materials used for cutting tools, such as cemented carbides and Stellite.

The request for the new project is being submitted to the Standards Council of the American Standards Association.

### Commercial Standard Explains Value of Commercial Standards

A new Commercial Standard, CSO-40, which has just been released, explains the value of Commercial Standards to business. It sets forth the background, purpose, economic necessity, and scope of Commercial Standards. It also answers, as briefly as practicable, the usual questions regarding the procedure for the establishing of Commercial Standards. A few examples of what has been accomplished through the certification of quality based upon established Commercial Standards are cited.

Copies of the Commercial Standard are obtainable from the National Bureau of Standards, Washington, D. C., free of charge upon request.



## ASTM Sets Price Scale For Reprinting Standards

The Executive Committee of the American Society for Testing Materials has established the policy of making a charge for the right to reprint its copyrighted ASTM standards and tentative standards. For many years no charge for this right has been made, but in recent years many organizations have found it desirable, in using ASTM standards, to reprint them in their own type format for distribution instead of purchasing them from the Society. This practice deprives the Society of a needed source of income from sales of publications, it is explained, and is becoming more important with the rapidly expanding use of ASTM standards. Inasmuch as all income from publication sales is applied to the operations of the Society, which benefit not only its members but industry generally, it is equitable that the Society should be reimbursed for this privilege, the ASTM Executive Committee explains.

A scale of charges for the right to reprint standards and tentative standards has been adopted, the charges depending upon the number of standards and the number of copies to be printed.

Permission to reprint standards, and the charges, may be obtained from the Secretary-Treasurer, American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa.

No charge will be made for reprinting excerpts from standards, although permission for excerpting should be obtained. Suitable acknowledgment to the Society will be required in all cases.

## Canadian Association's Manual Tells About Approvals Service

Information about the procedure to be followed in obtaining approval by the Canadian Engineering Standards Association for electrical equipment under the new Approval policy of the Association is now available in an *Approvals Manual* just published by the Association. The Manual contains sections on General Information Respecting Approvals; Procedure Respecting CESA Approvals; and Schedules of Approvals Fees. The general information section describes the Approvals Service and goes into some detail concerning the rules and regulations under which it is being carried out.

The Association's service is intended to establish uniform standards for the construction of electrical equipment which will eliminate conditions hazardous to life and property. It continues the work hitherto carried on by the Hydro-

Electric Power Commission of Ontario, and the National Research Council of Canada. Both these organizations are actively cooperating in the work being carried out now by the Canadian Engineering Standards Association.

## Standards from Great Britain, South Africa, and Argentina

The Library and Reference Service of the American Standards Association has received the following standards from the national standardizing bodies of Great Britain, South Africa, and Argentina.

### Great Britain

#### Revised

Metal arc welding in mild steel as applied to general building construction (538-1940)  
Test code for acceptance test for steam turbines (752-1940)

#### British Air Raid Precautions Standards

Bleach ointment, Anti-gas ointment No. 1 (BS/ARP 40)  
Front lamps for tram cars (BS/ARP 41)  
A closet for use in air-raid shelters (BS/ARP 43)

#### Revised British Air Raid Precautions Standard

Illuminated and non-illuminated A.R.P. signs (BS/ARP 32)

### South Africa

Standard specification for the determination of the comparative calorific values of coals in South Africa (No. 5-1940)

### Argentina

Simbolos de las magnitudes mas usuales para formulas (3-P)  
Nomenclatura y simbolos de ensayos de resistencia de materiales (4-P)  
Aceros al carbono, laminados en barras y perfiles—comercialmente denominados hierros (503-P)  
Barita—sulfato de bario natural (1008-P)  
Cables y sus accesorios para instalaciones electricas (2005-P)

The standards received from Argentina are published in Spanish.

## Pacific Coast Association Issues 1940 Building Code

The 1940 edition of the Uniform Building Code adopted by the Pacific Coast Building Officials' Conference is now available at \$1.00 per copy. The Code was originally adopted at the Sixth Annual Meeting of the Conference in October, 1927, and the present edition includes revisions and additions approved at the Seventeenth Annual Meeting, October, 1939.

The Pacific Coast Building Officials' Conference changed its name recently to the Uniform Building Code Association. Copies of the Code can be obtained from the Association at 124 West Fourth Street, Los Angeles, California.



## Railroads' Mechanical Division Studies Changes in Standards

**T**HE railroads today constitute one of the first lines of defense of the country. Due to the splendid work of standardization of equipment and operating methods which has been carried on by the various railroad departments, the railroads were never in better shape to face such a task than they are today," C. H. Buford, vice-president (operations and maintenance department) told the Mechanical Division of the Association of American Railroads at its annual meeting at Chicago, June 27 and 28.

Specifications and standards were considered by the Division during the meeting. A revision of a standard specification for renovated car-oil, M-904-38, and a new specification for renovated journal-box waste and packing, M-910-38, which had been reported to the members in August, 1938, were again reported by subcommittees with special emphasis on studies made during the past year of the methods used by different railroads in renovating car oil and waste. It was reported that the specifications for renovated journal-box waste and packing, M-910-39 are now being used by the railroads, but proposed revisions of the specifications for renovated car-oil are still being studied by the subcommittee.

Study of specifications permitting the construction of tank car tanks by fusion welding has led to recommendations that it is hoped will be considered by the Interstate Commerce Commission very soon.

Recommendations from the committee on car construction included changes in the requirements for the standard steel sheet box car, new designs for freight cars, and a proposed standard contour for new passenger cars.

In accordance with recommendations from the Committee on Specifications for Materials, minor

changes were made in specifications for carbon steel forgings (annealed and unannealed); specifications for boiler tubes; and specifications for structural rivet steel.

Changes in the specifications for structural rivets; galvanized sheets; refined wrought-iron bars; hose for carrying air, gas, and oxygen; and the specifications for renovated car oil previously mentioned are all to go to letter ballot.

The Committee on Locomotive Construction announced that a study of the service from AAR standard valves had been made and revisions to the bushing and lock nut and to the seat ring and disc are being made. Proposed standard valves for super-heating steam up to 400 lb pressure and a temperature of 750 F are still under consideration.

### 220 Railways Are Members

The membership of the Mechanical Division includes 220 railway systems which are full members of the Association of American Railroads, and 182 railways which are associate members of the AAR. These railroads have appointed 827 representatives in the Mechanical Division.

Officers of the Division elected at the meeting are: W. H. Flynn, general superintendent motive power and rolling stock, New York Central, *chairman*; R. G. Henley, superintendent motive power, Norfolk & Western, *vice-chairman*.

As an ASA Member-Body, the Association of American Railroads has a voice in determining ASA policy on standards. The Mechanical Division itself is active in the work of the American Standards Association, as a member of the ASA Mechanical Standards Committee, and of 13 ASA sectional committees.

## Paving Brick Industry Approves New Provisions

In April a revision of Simplified Practice Recommendation R1-36 for Vitrified Paving Brick was proposed and submitted to the industry for approval. According to an announcement by the Division of Simplified Practice, National Bureau of Standards, the changes in the recommendation have received the necessary degree of acceptance by the industry and the revision became effective August 15, 1940.

The new edition covers five varieties of vitrified paving brick. Since the original recommendation was established in 1922 revision has been under consideration ten times. On nine of these occasions the existing list of varieties was reaffirmed without change.

The current revision is designated as R1-40 and mimeographed copies are available from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C., without charge. Printed copies of the revision will be available shortly.

## Manufacturers Are Invited to Join New Consumer Standards Institute

SEVERAL hundred of the nation's leading manufacturers were invited during the last week of July to cooperate in a new Institute of Standards, which is being organized under the temporary sponsorship of *McCall's Magazine*.

The Institute, headed by A. G. Mezerik, was incorporated as a non-profit enterprise last April, with the idea of bringing together four kinds of members—publishers, manufacturers, consumer groups, and testing laboratories—in a program for testing and labeling consumer goods.

Plans for the Institute call for a Board of Review elected by the consumer members of the Institute, whose duty it will be to assemble, select, and accept standards on which the laboratory tests for consumer goods are to be based. The Institute, it is explained, will not try to develop its own standards, but will use standards which have been developed by such organizations as the American Standards Association and various government agencies.

When standards have been selected by the Consumer Board of Review, manufacturer members may then, if they wish, send their products to one of the laboratories approved by the Institute to be tested. Nine laboratories have been approved—Electrical Testing Laboratories, New York; Food Research Laboratories, New York; Fort Worth Laboratories, Fort Worth; Abbot H. Hanks, Inc., San Francisco; Laucks Laboratories, Seattle; Patzig Testing Laboratories, Des Moines; Pittsburgh Testing Laboratories, Pittsburgh; Skinner and Sherman, Inc., Boston; and United States Testing Company, Hoboken, N. J. The manufacturer will pay the cost of the prescribed tests, plus a fee of ten per cent, which is assessed for the maintenance of the Institute.

### Manufacturer Receives Test Report

After a manufacturer's product is tested, the laboratory will report back to the manufacturer, and to no one else, whether the product comes up to the accepted standard. At this point, the manufacturer can, if he wishes, forget about the whole thing. However, if his product is up to the standard, and he wishes to promote the fact, he need only forward the laboratory report to the Institute, and the symbol of the Institute will be automatically granted. The symbol, shown in the cut on this page, is not a seal of approval but is



**Publishers, manufacturers, consumer groups, and testing laboratories are being organized to carry out a testing and labeling program for consumer goods**

a confirmation that the product has met an accepted standard. A copy of the standard will be furnished to any interested person.

Publisher members of the Institute will elect the board of trustees and support the Institute program through editorial cooperation.

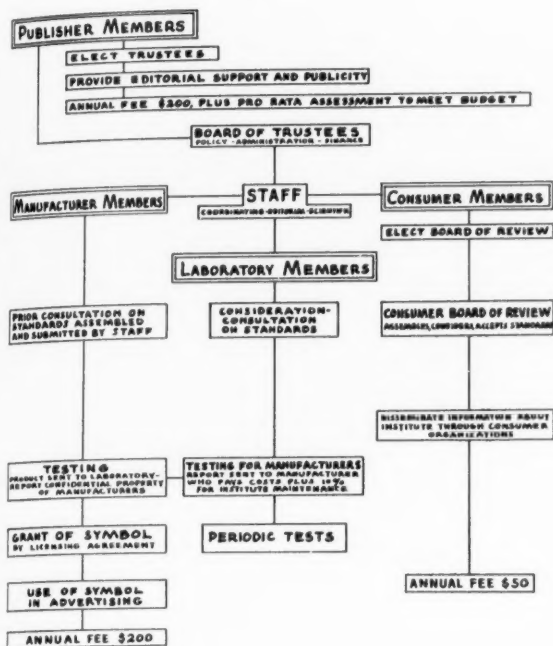
Eligibility for membership in the Institute is as follows:

1. Any manufacturer who is in sympathy with the objectives of the plan, even though standards may not be available at the time for the product which he manufactures.
2. Any laboratory possessing the facilities, test procedures, and integrity to perform testing adequately.
3. Any publisher whose editorial policies are in accord with the objectives of the Institute.
4. Any consumer organization, unless it was founded to further an economic interest other than consumption, or unless its consumer program embraces objectives which are in conflict with those of the charter organizations.

Publishers and manufacturers will pay \$200 a year dues, and consumer groups (not individuals) will pay \$50. Laboratory members, on the other hand, will be paid for the work they do.

Otis L. Wiese, editor of *McCall's*, in his letter

### How the Institute of Standards Will Be Organized



of July 26 inviting manufacturers to join the Institute, expressed his faith in the Institute thus:

"I am writing you in the hope that we, as publishers, and you, as manufacturers, can collaborate—with consumers and testing laboratories—to bring order and direction to the consumer movement in America. This movement has grown out of discord into a position of prime importance to manufacturers and publishers alike. The solution is offered us, I think, by The Institute of Standards, Inc."

### Suggested Commercial Standard For Portable Electric Drills

The Recommended Commercial Standard for Portable Electric Drills (Exclusive of High Frequency) is now being circulated to those interested for their consideration, according to an announcement by the National Bureau of Standards.

A general conference on the subject of portable electric drills was held in Chicago on June 26. The conference was conducted by I. J. Fairchild, who represented the National Bureau of Standards. The draft for the standard was adopted by

the conference, for circulation to producers, distributors, and users.

If the standard is accepted it will provide minimum specifications for Class A, heavy-duty, and Class B, standard, electric drills manufactured in eleven standard sizes ranging from 3/16 inch to 1 1/2 inches. The draft covers design, construction, minimum full-load ampere rating for each class and size of drill; tests; nameplates; and a uniform method of certifying compliance with the standard.

Anyone wishing to procure a copy of the Recommended Commercial Standard for Portable Electric Drills may do so by requesting a mimeographed copy (TS-2902) from the National Bureau of Standards, Washington, D. C. There is no charge for the mimeographed copies.

### Revision of Recommendation for Files and Rasps Now in Print

The revision of the Simplified Practice Recommendation R6, Files and Rasps, has now been approved by those concerned, and printed copies of the document are available for five cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C.

The simplification of files and rasps was first undertaken by the industry in cooperation with the War Industries Board in 1918, states the Division of Simplified Practice, National Bureau of Standards, in its announcement of the new revision. In 1918 the number of varieties of stock sizes was cut from 1,351 to 619. The current revision brings the number down to 377, which is only 28 per cent of the number of varieties produced before 1918. This new revision is based on a survey of production and sales for 1938.

In addition to the simplified schedule of types and sizes, the new edition briefly outlines the development of the project and lists the members of the standing committee, and acceptors of the recommendation.

### Commissar Is Dismissed

*Special Cable to The New York Times.*

Moscow, July 10—Alexander Samokhvaloff has been relieved of his duties as Commissar for Non-ferrous Metallurgy. An inquiry is said to have revealed that, "in order to be able to boast of fulfillment of the plan for production in quantity, in certain cases he passed materials violating the standards fixed."

## Revised Standard for Tree Wire Promises Wider Popular Use

**U**SERS and suppliers alike welcomed the American Tentative Standard Specifications for Tree Wire Coverings (C8.36-1936) when they were approved by the American Standards Association in 1936, because before that time there were no industry specifications for the coverings of insulated conductors strung where they might contact tree branches. As a result of developments associated with preparation of the standard, the quality of tree wire coverings improved very definitely, and this improvement has been maintained since the standard was issued.

During the period 1936-1940, however, use of the standard proved that certain revisions were desirable. At the same time comment on the tree wire standards which had been developed by the National Electrical Manufacturers Association concurrently with the American Tentative Standard specifications showed that a standard for the complete tree wire rather than for the coverings alone would meet with more popular use. Accordingly, the American Tentative Standard C8.36-1936 has now been revised in keeping with the policy of the American Standards Association to reflect the general demand and practice of the industry.

The revised standard, American Standard Specifications for Rubber-Insulated Tree Wire (C8.36-1940), includes requirements for the following essential components of the tree wire in addition to specifications for the wire covering. The requirements refer to the standards listed.

### Conductor

1. American Standard Specifications for Medium-Hard Drawn Copper Wire (H4.3-1940)
2. American Standard Specifications for Tinned or Annealed Copper Wire for Rubber Insulation (H4.4-1940), Sections 3 to 12 inclusive and section 14
3. American Standard Specifications for Bare Concentric Stranded Cable for Insulated Conductors: Hard, Medium-Hard, or Soft (C8.14-1938)

### Insulation

4. American Standard Specifications for Class AO 30 Per Cent Rubber Insulation for Wire and Cable for General Purposes (C8.17-1936)

**New edition includes requirements for complete wire; former edition was for coverings only**

by

**R. H. Titley**

*Chairman, Section 3,  
Technical Committee 8*

and

**D. S. MacCorkle**

*Chairman, Technical Committee 8,  
ASA Committee on Wire and Cable*

5. As an alternative insulation, Performance Rubber Compound in accordance with ASTM Specification D 353-39 T
6. As an alternative insulation, other insulations that may be specified in the purchase order

### Cable Tape

7. When specified, to be in accordance with tape requirements of ASTM Specification D 27-39 T

### Shielding

8. Specified in accordance with satisfactory industry experience—no standard to date.

These additions provide a standard which will be much more practicable, we believe, and will insure its wider use. Although there has been a reduction in the use of tree wire in this country during the past three or four years, there is still a considerable amount in use.

The new standard does not revise the requirements for the covering of the tree wire.

Continued attention is being directed toward development of a combined weatherometer and



## Tree Wire Standard Prepared By Representative Committee

The American Standard covering Specifications for Rubber-Insulated Tree Wire, C8.16-1940, was prepared by a representative committee of manufacturers, users, and other interested groups, and is one of a series of standards for wire and cable being prepared by this committee. Members of ASA Committee on Wire and Cable (C8) are.

*W. F. Davidson*, Electric Light and Power Group, *Chairman*

*G. M. Haskell*, National Electrical Manufacturers Association, *Vice-Chairman*

*W. H. Bassett, Jr.*, American Society for Testing Materials and National Electrical Manufacturers Association, *Secretary*

American Institute of Electrical Engineers, *C. L. Dawes*, *W. A. Del Mar*, *W. N. Zippler*

American Society for Testing Materials, *W. H. Bassett, Jr.*, *R. W. Chadbourn*, *F. M. Farmer*, *Dean Harvey*

American Transit Association, *C. R. Harte*, *F. J. White*

Association of American Railroads, Engineering Division, Electrical Section, *C. R. Troop*

Association of American Railroads, Engineering Division, Signal Section, *J. J. Corcoran*

Association of American Railroads, Mechanical Division, Electrical Section, *J. R. Sloan*

Electric Light and Power Group, *W. F. Davidson*, *G. E. Dean*, *C. T. Sinclair*, *A. B. Campbell (alt.)*, *J. H. Foote (alt.)*

International Municipal Signal Association, Inc., *Dr. M. G. Lloyd*, *Jay B. Franke (alt.)*

National Board of Fire Underwriters, *A. H. Nuckolls*

National Bureau of Standards, U. S. Department of Commerce, *Dr. J. Franklin Meyer*

National Electrical Manufacturers Association, *W. H. Bassett, Jr.*, *G. M. Haskell*, *C. O. Hull*, *Moss A. Kent*, *E. D. Youmans*

National Fire Protection Association, *R. B. Shepard*

Society of Automotive Engineers, *F. W. Andrew*

Telephone Group, *C. S. Gordon*

U. S. Navy Department, Bureau of Engineering, Specification Section, Design Division, *Officer in Charge*; *Laboratory Officer of Material Laboratory (alt.)*

U. S. War Department, *Captain Arthur J. Sheridan*

This committee, working through technical subcommittees, has now completed twenty standards for wire and cable.

abrasion test, shielding practices, classification of tree wire constructions with the idea that at least two qualities of tree wire are needed, and other similar problems. Section 3 of Technical Committee 8 is carrying on these investigations:

*R. H. Titley*, *Chairman*

*E. H. Carr*

*G. J. Crowdes*

*L. L. Carter*

*H. G. Hough*

*D. S. MacCorkle*

*E. D. Youmans*

The revised standard prepared by this subcom-

mittee was approved by the ASA Committee on Wire and Cable (C8), was then submitted to the Electrical Standards Committee, the general administrative committee directing the electrical standard program of the American Standards Association, and was finally submitted to and approved by the Standards Council of the ASA.

Copies may be obtained from the American Standards Association, 29 West 39 Street, New York, at 20 cents each.

## AIEE Appoints Members On Standards Committee

New members of the AIEE Standards Committee have been appointed by the American Institute of Electrical Engineers for the coming year, as follows:

*R. T. Henry*, *Chairman*

*Edward Bennett*

*W. P. Dobson*

*R. E. Hellmund*

*A. H. Kehoe*

*Alexander Maxwell*

*J. Franklin Meyer*

*V. M. Montsinger*

*S. H. Mortensen*

*E. B. Paxton*

*Gordon Thompson*

*R. L. Young*

Chairmen of working and coordinating com-

mittees, and of AIEE delegations on other standardizing bodies, as well as the President and Honorary President of the U. S. National Committee of the International Electrotechnical Commission are ex-officio members.

The duties of the committee include to consider and investigate all matters relating to units and standards in electrical engineering and in allied arts and sciences, and to recommend action on them to the Board of Directors of the American Institute of Electrical Engineers.

## Standardization in Tree-Growing— The Shelterbelt Comes True

**M**ORE than 100,000,000 trees are now growing in an unusual standardization project, far removed from interchangeability of machine parts and factory mass production. In this new type of project, standard shelterbelts of trees have been carefully designed and streamlined to hold the top-soil in dry mid-western states and save thousands of acres of land from the ravages of driving winds. Seventeen thousand of these shelterbelts have already been planted and are successfully growing.

A typical standard belt consists of ten rows of trees, each row planted ten feet apart, reports *Business Week* in its article "The Shelterbelt Comes True," April 6, 1940. The belt is one-half or a full mile in length, but in either case it is almost certain to run in an east-west direction, at right angles to prevailing north and south winds. When only half-grown the roof of the shelterbelt presents a streamlined front to the south wind—breeder of "dusters." The shelterbelts are streamlined by planting low shrubs in the first row (on the south side) followed by rows of successively taller species of trees. The ninth row contains tall, fast-growing trees planted to provide a windbreak in the shortest possible time. Shrubs are planted in the tenth and last row, tapering the tree belt roof down again.

### Shelterbelts Lift the Wind

This method of streamlining the roof of shelterbelts gives a definite uplift to most of the winds, carrying them up and over fields to the leeward for an effective distance 20 times the height of the tallest trees. Partial effectiveness is seen for 50 times the tree height.

Altogether 40 species of trees have been approved for shelterbelt planting; four or five varieties are used in a single unit.

In Oklahoma, the tallest rows in five-year-old belts are 40 ft high; further north in Nebraska the present top is about 25 ft. Forestry experts predict that the height of the 25 ft trees (cottonwood and Chinese elm) should be doubled within five to seven years, depending on climatic conditions.

A field shelterbelt represents a cooperative deal between the farmer and the government. The farmer agrees to furnish the land (average: 7

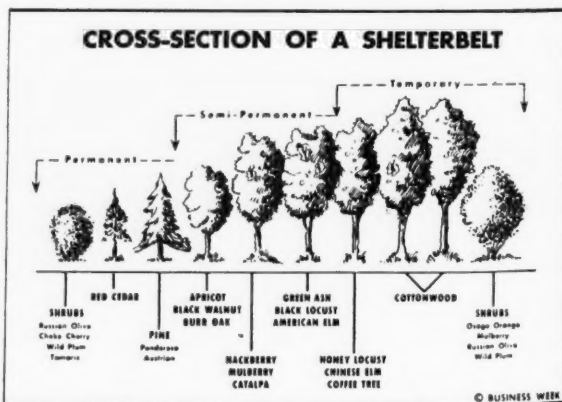
acres) and the materials for fencing. He also undertakes to cultivate the planting as necessary—two to three times a year until the ground is shaded completely. The Forest Service of the Department of Agriculture furnishes the saplings, supervises the planting and fence building (both jobs are done by relief labor), and makes replacements of trees as necessary. After planting, the saplings are never watered except possibly the evergreens, and then only in case of prolonged drought. The farmer's services are estimated to represent one-half the ultimate cost of his shelterbelt.

### Local Committees Plan Belts

When shelterbelts are desired in a community, a township tree-planting committee of farmers is organized to pass on all applications from farmers. Consideration is given by the committee to the best locations for belts, and the prospects of cooperation from landowners and tenants.

A uniform planting design for each township has been worked out, providing for twelve parallel rows of shelterbelts, one-half mile apart. Each row extends six miles across the township. Hence, the perfect shelterbelt pattern for a township calls for 72 miles of planting. In actual practice about 50 miles is considered a complete planting, one-third of the land usually being inaccessible or unsuitable for shelterbelt planting.

The shelterbelts are expected to divert and slow down winds for a limited distance sufficiently to stop blowing of soil, seed, and snow; to lessen





**A Typical Shelterbelt**

*Courtesy Business Week*

the danger of crop firing caused by hot winds; and to check excessive evaporation from the soil. In addition, the temporary and semi-permanent trees are intended to furnish prairie farmers with ever-needed wood products such as fence posts, poles, rough lumber, and fuel.

A survey of only 50 shelterbelts conducted last summer by the Kansas Fish and Game Department revealed an additional benefit. *Business Week* reports. In these belts, more than 10,000 insectivorous birds including 1,000 quail and pheasants, had moved in, as well as a variety of small animals including opossum, coon, skunk, and coyotes.

The Prairie States Forestry Project recently announced the results of the first half of its ten-year planting program. Of 17,000 field shelter-

belts planted since 1935, only two per cent have been abandoned. Individual tree replacements average 33 per cent of the 125,000,000 saplings planted, which nurserymen say is not at all out of line considering the adverse planting conditions. One acre of shelterbelt which costs the government less than \$30.00 protects 20 acres or more of crop land. Amortizing the investment on a 50-year schedule and making allowances for future tree replacements, the government's cost per acre protected per year is less than 4 cents; the farmers' share, represented mostly in labor, about 3 cents. The government's cost per tree planted and maintained to date is 5½ cents. Total acreage to date is about 120,000. The project's goal is 1,500,000 acres (one per cent of the general area of favorable soils).

### Three Items Added to List of Package Sizes for Insecticides

Three items have been added to Simplified Practice Recommendation R 41-38 which covers package sizes for agricultural insecticides and fungicides. This current revision of the recommendation also enlarges its scope to include standard packages for nicotine sulphate, the Division of Simplified Practice stated recently.

As originally promulgated in 1926, the recommendation established a simplified schedule of package sizes for arsenate of lead, calcium arsenate, paris green, and bordeaux mixture. A revision, which became effective in 1938, embodied certain changes in package sizes, and am-

plified the schedule to include the packaging of basic lead arsenate.

Until printed copies are procurable, mimeographed copies of R 41-40 may be obtained without charge from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

### Commercial Laboratories Elect Nydick Executive Secretary

A. J. Nydick has been elected Executive Secretary of the American Council of Commercial Laboratories, Associate Member of the American Standards Association.

## National Fire Protection Association Acts on Standards to Prevent Fire

**T**HE Forty-fourth annual meeting of the National Fire Protection Association, held at Atlantic City from May 7-11, 1940, focused attention on the widespread campaign that is being carried on to reduce danger to life and property from fire.

Preliminary to the general sessions, three special sections held meetings. The Fire Marshals Section, which includes the state, provincial, and city fire marshals and fire prevention inspectors, held a special two-day session concerned primarily with the development of better procedures for fire inspections and for fire investigations. The high-light of this meeting was an address on the work of the Federal Bureau of Investigation on arson and sabotage by Assistant Director E. A. Tamm of the FBI in Washington.

The Marine Section of the Association, responsible for most of the standards on protection of ships and shipyards, adopted at its special session this year new good practice requirements for the location, construction, and operation of boat basins.

The third special session was a special conference for volunteer firemen. The Association's section for volunteer fire departments includes 13,000 such departments. A large proportion of the population and wealth of the country is safeguarded from fire by these volunteer fire departments.

At the opening general session of the convention President S. D. McComb of New York suggested that special attention be given to the protection of museums, art objects, and historic buildings. The NFPA is setting up a technical committee to handle this problem.

### **More Than 5,000 Members in NFPA**

The largest membership in the history of the Association—over 5,000 members in 37 countries—was reported by the Membership Committee.

Many technical committees of the Association reported at the meeting.

Perhaps the most important accomplishment was the adoption of the 1940 edition of the National Electrical Code which has been reported to the American Standards Association for ap-

### **Revised standards will be submitted to American Stand- ards Association**

by

**Percy Bugbee**

*General Manager, National  
Fire Protection Association*

proval as an American Standard. The National Electrical Code is one of the most widely adopted standards of practice in the world.

Other committees presenting comprehensive new standards were the Committee on Signaling Systems which presented a new standard on Fire Alarm Systems, and the Committee on Automatic Sprinklers which presented a comprehensive new standard on the Construction and Installation of Sprinkler Systems. The Committee on Gases secured the adoption of new standards on Liquefied Petroleum Gases; and an ordinance on Piers and Wharves, prepared by the Committee on Piers and Wharves and presented by the Committee on Laws and Ordinances, was adopted.

A special model state electrical law was presented for discussion but in the face of objection by the National Electrical Manufacturers Association and others no action on this was taken at the meeting.

Amendments to the Building Exits code, an American Standard, and to the Air Conditioning Code, also an American Standard, were adopted and will be submitted to the American Standards Association for final approval, it is expected.

A feature of the meeting this year was a special session devoted to the serious problem of the reduction of loss of life and property in fires in dwellings. There are nearly 1,000 home fires a day and a substantial proportion of the loss of life from fire occurs to women and children as the result of fires in homes.



New officers elected by the Association are:

Alvah Small, Chicago, *President*

David J. Price, Washington, *Vice-President*

Richard E. Vernor, Chicago, *Vice-President*

Hovey T. Freeman of Providence,

*Secretary-Treasurer*

Albert T. Bell, *Chairman, Board of Directors*

Mr. Small is president of Underwriters' Labo-

ratories, Inc., of Chicago. He has long been active in the work of the American Standards Association, and has represented the National Fire Protection Association and the Fire Protection Group on the Electrical Standards Committee of the ASA, the Standards Council, and the ASA Board of Directors.

## Screw Thread Standards For Federal Services

The standards established by the former National Screw Thread Commission have been reissued with minor corrections and editorial changes by the National Bureau of Standards at the request of the Interdepartmental Screw Thread Committee. The document, *Screw Thread Standards for Federal Services*, Handbook H25 of the National Bureau of Standards, has been approved by the Interdepartmental Screw Thread Committee for use in the War, Navy, and Commerce Departments. It presents dimensional information upon which specifications may be based for threaded products for Government requirements. The standards are intended to conform to generally accepted commercial practice, although certain special requirements of the Government necessitate the inclusion of some standards not ordinarily applicable outside the Government service, the National Bureau of Standards announces.

The Interdepartmental Screw Thread Committee which was established by the Departments of War, Navy, and Commerce to promote uniformity in screw-thread standards in those Departments, is charged with responsibility for developing standards for screw threads; standardization of gages, dies, and taps; and standardization of dimensions of nuts, bolt heads, wrenches, and other items used for interchangeable threaded parts.

When the Committee was organized in 1939, the American Standards Association was invited by the Government to appoint liaison representatives and named the following members of ASA committees concerned with screw thread problems:

Earle Buckingham, secretary of ASA Committee B1 on Screw Threads

J. H. Edmonds, member of ASA Committee B18 on Rivet Proportions

R. E. Flanders,<sup>1</sup> chairman of ASA Committee B1 on Screw Threads

A. M. Houser, member of ASA Committee B2 on Pipe Threads

Copies of National Bureau of Standards Handbook H25 can be purchased for 20 cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C.

## Refractory Recommendations Reaffirmed Without Change

The Division of Simplified Practice of the National Bureau of Standards has announced that the following Simplified Practice Recommendations for refractories have been reaffirmed without change by the Joint Committee on Foundry Refractories:

Malleable Foundry Refractories, R79-28  
Cupola Refractories, R154-38

The recommendation for malleable foundry refractories establishes the shapes and sizes of various kinds of malleable foundry refractories used for door opening tile, tap-out blocks, side and bridge walls, bungs, roofs, and stacks. The recommendation for cupola refractories establishes the stock sizes of 6-, 9-, and 4½-inch cupola blocks, and tap-out and slag-hole blocks.

Copies of either recommendation may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents each.

## Electrical Definitions Nearly Completed

The first edition of standard definitions for electrical terms is now being completed by the sectional committee and may be available by the end of 1940 or early in 1941, according to a recent report of the committee. The committee has studied definitions already published in approved electrical standards as the basis for its work, hoping to bring about complete correlation of the definitions used in different standards. In the past, committees have used different definitions for the same terms, but to assure uniformity it is suggested that all electrical committees confer with the ASA sectional committee on Definitions for Electrical Terms (C42) before deciding on a definition for an electrical term.

<sup>1</sup>Mr. Flanders has just been succeeded by Charles C. Winters who is a member of ASA Committee B1 on Screw Threads and also B2 on Pipe Threads.

## ASTM Annual Meeting Approves 77 New Tentative Standards

**I**NTENSE activity in standardization and research was shown at the Forty-third Annual Meeting of the American Society for Testing Materials at Atlantic City, June 24 to 28. Twenty-two formal technical sessions and 250 committee meetings were held, and more than 110 papers and reports were presented.

Some 77 new tentative standards were approved, the largest number yet acted on at an annual meeting. Forty existing tentative specifications were adopted as standard. When letter ballot action is completed on the various recommendations approved at the meeting, the Society will have on its books close to 950 standard and tentative specifications, tests, and definitions, a net increase of 65 over last year.

Highlights of the meeting were two addresses on the importance of specifications for materials. The first, H. H. Morgan's presidential address, stressed the commercial importance of specifications; the second, by Lt. Col. W. C. Young of the War Department, indicated the significance of standards in national preparedness. An abstract of Colonel Young's address is published on pages 197 to 202 of this issue.

Mr. Morgan listed some of the advantages of using specifications as follows: They enable the buyer to get what he wants; the material is of uniform quality; the buyer receives goods more quickly and with less trouble; he has access to wider markets; costs are lower; a suitable acceptance basis is established; material becomes standardized; and research is promoted.

### *Buyer Knows What He Gets*

Mr. Morgan stressed the fact that the practical importance of specifications is directly related to their ability to assure the buyer that he is receiving exactly the goods he orders. In the competition of trade, particularly in heavy products under mass production, it is essential to know that materials are furnished according to specifications.

P. H. Bates, the Fifteenth Edgar Marburg Lecturer, presented a lecture on portland cement. Mr. Bates is chief of the Clay and Silicate Products Division of the National Bureau of Standards,

### **Technical sessions and committee meetings advance work on national standard tests for many types of materials**

and chairman of ASTM Committee C-1 on Cement. He referred to the new specifications for cement, approval of which was one of the important actions taken at the Society's meeting. They cover five types, including high-early-strength, low heat of hydration, and sulfate-resistant cements. Mr. Bates said that the autoclave test embodied in the specifications insures generally a more uniform and better made cement.

### *Ferrous Metals*

The report of Committee A-1 on Steel included five new tentative specifications—one on factory-made wrought carbon-steel and carbon-molybdenum-steel welding fittings, and four covering carbon and alloy-steel forgings respectively for general industrial and for railroad use. These provide various grades of material classified by size and by heat treatments to provide the required physical properties. An important addition was made in the carbon-steel specifications for general industrial use providing a grade for use in bridges with a minimum tensile strength of 66,000 psi and 33,000 psi yield point.

A new grade of high-strength boiler rivet with a tensile strength of 58,000-68,000 psi and yield point of half the tensile strength but in no case less than 32,000 psi is recommended. This compares with the existing standard boiler rivet grade of 45,000-55,000 psi tensile.

Two new service or coordinating committees—one in the field of heat treatment, and the other on welding—were approved by the Steel Committee to consider requirements for groups of materials such as forgings, pipe, castings, and the like.

An important new tentative standard for Uniformity of Coating by the Preece Test (Copper

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Sulfate Dip) on Zinc-Coated (Galvanized) Iron or Steel Articles was approved as developed by Committee A-5 on Corrosion of Iron and Steel. This method is a combination of the former tests for iron or steel wire (A 191-38) and steel castings and forgings, gray iron and malleable iron castings (A 208-38 T), but has been extended to apply to hardware shapes, threaded materials, and the like. For a year at least the Methods A 191 and A 208 will be continued.

Revisions of the Tentative Specifications for Electrodeposited Coatings of Zinc on Steel (A 164-39 T), Cadmium on Steel (A 165-39 T) and Nickel and Chromium on Steel (A 166-39 T) were approved providing for inclusion of requirements for a thicker coating class in the zinc, and in the nickel and chromium coatings and an intermediate thickness of coating in the specifications covering cadmium coatings.

### **Non-Ferrous Metals**

Committee B-2 on Non-Ferrous Metals and Alloys reported new tentative specifications for pig lead, replacing the existing Standard B 29. The specifications cover refined lead in pig form made from ore or other material by processes of reduction and refining. The types of lead covered are: corroding lead, chemical lead, acid lead, copper lead, common desilverized lead A, common desilverized lead B, and soft undesilverized lead.

Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys announced that, in cooperation with other committees and with the Joint Committee on Exposure Tests of Plating on Non-Ferrous Metals, it had prepared proposed specifications for electrodeposited coatings of nickel and chromium on copper and copper alloys, and on zinc and zinc alloys. These standards will probably be submitted to the Society for approval in the near future.

Intensive work on electrical heating, electrical-resistance, and electric-furnace alloys is being carried on by Committee B-4. A new tentative method of testing sleeves and tubing for radio tube cathodes was approved. The test procedure involves the dimensions and physical properties of the material.

### **War Department Cooperates**

During the past year a number of materials coming under the scope of the War Department have been studied by Committee B-5 on Copper and Copper Alloys and new tentative standards have been issued. In all of this work the War

## **ASTM Elects Barr President; Names Ball Vice-President**

W. M. Barr, Chief Chemical and Metallurgical Engineer of the Union Pacific Railroad Company, was elected by the American Society for Testing Materials at its annual meeting to succeed H. H. Morgan as ASTM president. H. J. Ball, Professor of Textile Engineering, Lowell Textile Institute, was chosen vice-president to serve with G. E. F. Lundell, chief of the Chemistry Division, National Bureau of Standards, who was elected vice-president in 1939.

The American Society for Testing Materials is an active Member of the American Standards Association, and has an outstanding position in the development of standards under ASA procedure. As a Member-Body of the ASA it has a voice through its representatives on the ASA Standards Council in final action on initiation of new standardization projects and on approval of standards, as well as on the membership of sectional committees. It is also represented on the Electrical Standards Committee, the United States National Committee of the International Standards Association, and the Mechanical Standards Committee of the American Standards Association.

Department has cooperated closely. Seven new specifications were approved for publication:

Specifications for Cartridge Brass Cartridge Case  
Cups  
Specifications for Gilding Metal Sheet and Strip  
Specifications for Gilding Metal Bullet Jacket  
Cups  
Specifications for Copper Rods and Bars  
Specifications for Brass Wire  
Specifications for Miscellaneous Brass Tubes  
Specifications for Leaded High-Strength Yellow  
Brass (Manganese Bronze) Castings

New specifications which will cover 25 copper-base alloys in ingot form for sand castings were reported by this committee. When approved, the new standard specifications will replace the existing Specifications B 30.

To tie its work in even more closely with the Government work on specifications, Committee B-5 is planning to invite special advisers from the Ordnance Department, Navy Department, Air Corps, etc., to serve as members of its Advisory Committee.

Two new tentative tests were approved by Com-

mittee B-7 on Light Metals and Alloys for the weight of coating on anodically coated aluminum, and for sealing of anodically coated aluminum.

The annual report of Committee C-1 on Cement recommended new specifications for portland cement comprising five types. These include one for use in general construction, another for high-early-strength, one for use when a low heat of hydration is required, and one for use when high sulfate resistance is required, and type II for use when special properties of the three latter types are not required. For all five types the autoclave expansion is set at 0.50 per cent maximum. A new method of test for autoclave expansion was accepted as tentative.

The new portland cement specifications will not become effective until September 2, 1940. It is expected that the new tentative standard will replace the present Standard Specifications for Portland Cement (C 9-38) and for High-Early-Strength Portland Cement (C 74-39).

### Fire Tests

Extensive revisions in the specifications recommended by the Committee on Refractories, and a new Method of Conducting Fire Tests of Door Assemblies were recommended by Committee C-5 on Fire Tests of Materials and Construction. This latter method applies to door assemblies of various materials and of various types of construction, for installation as protection against the passage of fire, heat, fumes, or smoke. These methods do not establish ratings, or standards of performance for different uses, as these depend upon service requirements and are under the control of various regulatory bodies. They do, however, cover temperature curve which is used in controlling the test, test structures, and assemblies, and the procedures to be followed as well as conditions of acceptance.

### Revisions to be Submitted to ASA

Revisions were recommended in Specifications for Fire-Retardant Properties of Wood for Scaffolding and Shoring (C 132-37 T). Tentative revisions of the Specifications for Fire Tests of Building Construction and Materials (C 19-33), designed to minimize inconsistencies in testing procedures, were approved for publication. When these revisions are approved the revised specifications may be submitted to the ASA to supersede the American Standard Specifications for Fire Tests for Building Construction and Materials (A2-1934; ASTM C19-33).

Four new tentative specifications were recom-

mended by the Refractories Committee:

Refractories for Malleable Iron Furnaces with Removable Rungs, and for Annealing Ovens, to replace Standard Specifications C 63-39

Refractories for Heavy Duty Stationary Boiler Service, to replace in part Standard Specifications C 64-39

Refractories for Moderate Duty Stationary Boiler Service, to replace in part Standard Specifications C 64-39, and

Refractories for Incinerators, to replace Standard Specifications C 106-39

A new classification of fireclay brick is being set up as a tentative revision of the Standard Definitions of Fireclay and Alumina-Diaspore Refractories (C 27-39), and this classification was incorporated in the new tentative specifications above.

The committee also recommended incorporation of an improved method of determining warpage in the Tentative Methods of Test for Size, Warpage and Bulk Specific Gravity of Refractory Brick.

The committee plans to sponsor a new edition of the *Refractories Manual* to be published in the fall of 1940. This will include all the refractory specifications and tests in their latest approved form.

### Recommends Masonry Units Standard

The Committee on Manufactured Masonry Units submitted a clarification of the Specifications for Building Brick (Made from Clay or Shale) (C 62-39 T) and also recommended the adoption of the Specifications for Solid Load-Bearing Concrete Masonry Units (C 145-39 T). Revisions of the Tentative Specifications for Paving Brick (C 7-38 T) may develop after the results of the research being conducted jointly by the Ohio State Highway Commission and the Public Roads Administration are available. The committee is undertaking studies on specifications for smooth facing structural clay tile. These are unglazed units designed for use in interior and exterior unplastered walls of buildings.

Two proposed methods of test, one for efficiency of materials for curing concrete, and the other intended to provide a standardized procedure for determining the volume changes of cement mortar and concrete when a fairly simple, routine test is desired, were recommended by Committee C-9 on Concrete and Concrete Aggregates.

Different testing procedures used in laboratory tests of aggregates which later were found responsible for unsound concrete were reported by F. N. Wray and H. J. Lichtefeld, Missouri State Highway Department, in a paper on "The Influence



of Test Methods on Moisture Absorption and Resistance of Coarse Aggregate to Freezing and Thawing." The results are of value in showing why certain features should or should not be incorporated in standardized testing procedure to obtain information on coarse aggregates in service. Results of the tests showed that the ASTM tentative method for freezing and thawing produced less deterioration than other methods.

### Paints

A dinner celebrated the thirtieth anniversary of the formal organization of Committee D-1 on Paint, Varnish, Lacquer, and Related Products.

The report of the committee included six new tentative standards, one covering specifications for titanated lithopone which is to be added, when adopted, to the Standard Specifications for Zinc Sulfide Pigments (D 477-39). Titanated lithopone has now become sufficiently well established and is sold in such quantities as to justify specifications covering its composition and properties, the report points out. New tentative specifications for ultramarine blue are to replace immediately the Standard Specifications for Ultramarine Blue (D 262-28) which the committee finds do not adequately meet present-day requirements and which it is recommending be withdrawn.

The new tentative specifications for carbon black, which is important for paint pigment purposes, will define this material as differentiated from those grades used in rubber and other commodities.

Other new methods approved cover a test for determining the phthalic anhydride content of alkyd resin solutions and test procedures to be applied to liquid driers for use in paints and varnishes.

Revised definitions of the terms relating to paint, varnish, lacquer, and related products which had remained unchanged for years, were recommended for publication as information. Terms covered include driers, enamels, hue, shade, tone, etc.

Sixteen of the standards in the charge of the committee were revised. One major group of specifications being changed covers various types of colored pigments, the revisions involving the addition of requirements for moisture and other volatile matter present in the pigments both in the dry form and as a paste in oil. Earlier specifications usually included a requirement for moisture in the pigment in paste form, but not in the dry pigment. The committee finds, however, that moisture requirements in these specifications are not consistent with conditions actually found in the products offered to the trade—hence, the proposed changes.

Three new tentative standards were recommended by Committee D-2 on Petroleum Products and Lubricants covering: Test for Carbonizable Substances in White Mineral Oil (Liquid Petrolatum), Test for Dropping Point of Lubricating Grease, and Method of Calculating Viscosity Index. The first test applies to white mineral oil (liquid petrolatum) to ascertain whether it conforms to the standard of quality prescribed by the U. S. Pharmacopoeia. The tables and equations included in the new Method of Calculating Viscosity Index provide a means for calculating the viscosity index of a petroleum product or lubricant from its viscosity at 100 and 210 F.

In connection with the work on aniline point, the subcommittee in charge prepared a proposed method of test which is published as information only.

### Paving Materials

On the recommendation of Committee D-4 on Road and Paving Materials, two new specifications were approved covering material for stabilized base course and stabilized surface course. These specifications cover the quality and size of sand-clay mixtures, gravel, stone or slag screenings, sand, crusher-run coarse aggregate consisting of gravel crushed stone, or slag combined with soil mortar, or any combination of these materials for use in the construction of a stabilized base course. The requirements are intended to cover only materials having normal or average specific gravity, absorption, and gradation characteristics. When materials such as caliche, gypsum, limerock, and water-soluble salts are to be used, appropriate limits suitable to their use must be specified.

The subcommittee on expansion joint materials has completed proposed specification requirements and tests for preformed expansion joint fillers for concrete (bituminous types), which are published as information only. The Tentative Specifications for Quick-Setting Emulsified Asphalt (for Penetration and Surface Treatment) (D 401) and for Asphalt Plank (D 517) are to be adopted as standard.

### Rubber Products

Committee D-11 on Rubber Products presented four new tentative standards, and referred to the three new standards approved late last fall by the Society covering methods of testing sponge rubber products (D 552-39 T), hard rubber products (D 530-39 T), and the methods of test for viscosity and total solids content of rubber cements (D 553-39 T). In all cases these tentative

standards represent the first effective standardization for quality control of these materials.

### ***New Methods for Automotive Rubber***

Two of the new test methods approved at the ASTM Annual Meeting were developed by D-11's Technical Committee A on Automotive Rubber which is sponsored jointly by the Society of Automotive Engineers and the ASTM. One covers testing of automotive hydraulic brake hose and the other is a test for compression-deflection characteristics of vulcanized rubber. The specifications for brake hose have been referred to the Society of Automotive Engineers for inclusion in its standards. These standard requirements and testing procedures meet urgent demands from automotive engineers and state highway departments for suitable requirements for the control of hydraulic brake hose used on licensed vehicles on the highways. Testing requirements for hydraulic brake hose cover volumetric expansion under pressure, bursting strength, fatigue life, and tensile strength.

Two other new tentative standards cover tests for accelerated aging of vulcanized rubber by the oxygen-pressure method at 80 C and specifications for insulated wire and cable: ozone-resistant insulation.

The committee expects to submit additional standardization procedures and specifications to the Society later in the year, one of these to determine the tearing resistance of vulcanized rubber, another for calibrating light source, and another for testing rubber specimens under artificial light as part of a life test program.

### ***Soap***

On the recommendation of Committee D-12 on Soaps and Other Detergents the American Society for Testing Materials approved four new tentative specifications for olive oil solid soap, salt-water soap, tetrasodium pyrophosphate (anhydrous), sodium sesquisilicate.

The first item covers olive oil soap in solid form suitable for textile and other purposes, of two types: type A, pure; and type B, blended. The tetrasodium pyrophosphate (anhydrous) specifications cover material suitable for various washing, cleaning, and scouring processes with soap or other detergents where a mildly alkaline material, with appreciable water-softening properties, is desired. The specifications for sodium sesquisilicate pertain to material suitable for various washing, cleaning, and scouring processes, with or without soap as conditions demand, and where a strongly alkaline material is desired.

The committee also submitted revisions in ex-

isting standards and tentative standards, including requirements for palm oil solid soap (D 535-39 T), terms relating to soaps and other detergents (D 459-39 T), and sampling and chemical analysis of special detergents (D 505-39 T).

Proposed specifications for grit cake soap for scouring and scrubbing purposes, of type A, for fine work such as glass and enamel, and type B, for general scouring and scrubbing; and specifications for detergent soap powder covering a detergent soap mixture in powder form suitable for uses in which large amounts of alkaline materials are desirable, are being published as information.

### ***Standards for Wool Blankets***

Of outstanding importance among the nine tentative standards recommended by Committee D-13 on Textile Materials were Specifications for All Wool, All Cotton, and Wool and Cotton Blanketing for household use, developed by the ASTM committee at the request of the ASA Advisory Committee on Ultimate Consumer Goods. They classify blanketing into eight types and prescribe physical requirements such as yarn count, minimum weight, thickness, breaking strength, and air permeability.

Two other new test methods for textiles covered resistance of fabrics to water and resistance of fabric and yarns to moths.

A new tentative test for shrinkage of grease wool is intended to determine the shrinkage and wool content of samples of grease wool or individual fleeces on a laboratory scale.

Glass yarn, woven glass tapes, woven glass fabrics, and woven glass tubular sleeving and braids, were also covered by new test methods developed by this committee.

### ***Soils for Engineering Use***

Three new tentative standards were recommended by Committee D-18 on Soils for Engineering Purposes: Method of Test for Moisture-Density Relations of Soil-Cement Mixtures, intended for determining the relationship between the moisture content of soil-cement mixtures and resulting densities (oven-dry weight per cubic foot) when the soil-cement mixture is compacted in the laboratory, before cement hydration, as specified; Wetting-and-Drying Test of Compacted Soil-Cement Mixtures for determining the soil-cement losses, moisture changes, and volume changes (swell and shrinkage) produced by repeated wetting and drying of compacted specimens of soil-cement mixtures of known composition and of known uniform density and moisture

content; and Freezing-and-Thawing Test of Compacted Soil-Cement Mixtures intended for determining the soil-cement losses, moisture changes, and volume changes (swell and shrinkage) produced by repeated freezing and thawing of compacted specimens of soil-cement mixtures of known composition and of known uniform density and moisture content. The committee reported that good progress was being made in the preparation of a list of definitions. A study of the consolidation test is continuing, particularly to determine the influence of a number of important factors on the consistency and reliability of the results obtained. Consideration of tests for determining mechanical stability and for bearing capacity will be continued.

A number of modifications in standards, involving methods of sampling water and methods for determining various ions, were proposed by Committee D-19 on Water. A new method of reporting results of analysis of industrial waters was discussed by R. C. Adams of the U. S. Naval Engineering Experiment Station in the symposium on problems in the classification of natural water intended for industrial use. The method covers definitions, recording the history of the sample, and the completeness and accuracy of analysis.

Three new tentative standards were reported by Committee D-20 on Plastics, including a test for flammability of plastics, for measuring flow temperatures of thermoplastic molding materials, and a test for water absorption of plastics.

## Federal Specifications Recently Approved

The following Federal Specifications and Amendments have been approved by the Director of Procurement for government purchasing and will be effective on the dates indicated.

- Ammonium-chloride; (sal ammoniac). Amendment-1 O-A-491 Aug. 15, 1940
- Brooms; rattan, push. Amendment-4 H-B-71 Sept. 1, 1940
- Brushes, dust; counter. (superseding H-B-201) H-B-201a Sept. 1, 1940
- Brushes, paint; metal-bound, flat (high-grade). Amendment-1 H-B-421 Sept. 1, 1940
- Brushes; tooth. Amendment-2 H-B-671 Sept. 1, 1940
- Cork; compressed (corkboard). Amendment-1 HH-C-561a Aug. 15, 1940
- Crackers and cookies. Amendment-1 EE-C-651a Aug. 15, 1940
- Machines, numbering; automatic, hand-operated. Amendment-1 GG-M-61 Aug. 15, 1940 (applicable to Procurement Division purchases only)
- Milk, dry, powdered; skimmed and whole. Amendment-1 C-M-351-b Aug. 15, 1940 (applicable to Navy Department purchases only)
- Paper; bond, white and colored. (superseding UU-P-121b) UU-P-121c Aug. 15, 1940
- Wire; fish (for electricians' and plumbers' use). (new) QQ-W-348 Sept. 1, 1940

The above specifications may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

## ASA Standards Activities

### Standards Approved Since Publication of Our Last Issue

- Twist Drills, Straight Shank American Standard B5.12-1940
- National Electrical Code (Revision of C1-1937) American Standard C1-1940
- Approval Requirements for Hotel and Restaurant Ranges and Unit Broilers American Standard Z21.3-1940
- Approval Requirements for Central Heating Gas Appliances American Standard Z21.13-1940
- Approval Requirements for Hotel and Restaurant Deep Fat Fryers American Standard Z21.27-1940
- Rules for Rounding Off Numerical Values American Standard Z25.1-1940
- Book Cloths, Buckrams, and Impregnated Fabrics for Bookbinding Purposes Except Library Bindings (Revision of CS57-36) American Standard CS57-40

### Standards Now Being Considered by Standards Council for ASA Approval

- Keyways for Holes in Gears B6.4
- Standards for Felt
- Proposed American Recommended Practice for the Use of Explosives in Anthracite Mines M27
- Commercial Standards for Sun Glass Lenses (CS 78-39; CS 79-39)
- Methods of Testing and Tolerances for Tubular Sleeving and Braids (ASTM D 354-36) L13
- Electric Fences of the National Electrical Safety Code, Part 6
- Protection of Structures Containing Inflammable Liquids and Gases—Part 3 of Code for Protection Against Lightning (From status as American Tentative Standard to American Standard) C5, Part 3

### New Project Being Considered

- Standardization of Identification Markings for Compressed Gas Cylinders

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